1. (currently amended) An electrode comprising:

an electrode body having a first and second side, wherein the first side comprises a flexible moisture barrier layer comprising a heat-sealable material and the second side comprises a conductive layer;

an electrically conductive gel layer disposed on the electrode body and which is further in electrical communication with the conductive layer, the periphery of the heat-sealable moisture barrier layer extending beyond the periphery of the gel layer; and

a rigid release liner heat-sealed to said flexible barrier layer around ~~a~~ the periphery of said gel layer.

2. (original) The electrode of claim 1, wherein the heat-sealable material comprises a thermoplastic polymeric material.

3. (original) The electrode of claim 1, wherein the flexible barrier layer further comprises a vapor or air barrier material comprising a polymeric film or sheet, a foil material, or a coated substrate comprising a metal, textile, paper, or non-woven material coated with a polymeric material.

4. (original) The electrode of claim 1, wherein the flexible barrier layer further comprises a vapor or air barrier material comprising a fluoropolymer film.

5. (original) The electrode of claim 1, wherein the flexible barrier layer comprises a laminate comprising a first layer of a heat-sealable layer comprising polyethylene disposed over a second layer of a vapor barrier comprising a fluoropolymer film.

6. (original) The electrode of claim 1, wherein the conductive layer comprises a metal sheet or foil, a conductive ink, or a laminate comprising a metal component disposed over a polymeric substrate.

7. (original) The electrode of claim 1, wherein the electrode further comprises a lead wire that is connected to the flexible barrier layer of the electrode and which electrically connects the electrode to a medical device.

8. (cancelled)

9. (currently amended) An electrode system comprising:

a pair of electrodes disposed on opposite sides of a rigid non-conductive release liner, wherein each electrode comprises an electrode body having first and second sides, wherein the first side comprises a flexible moisture barrier layer having a sealable periphery and the second side comprises a conductive layer, and an electrically conductive gel layer interposed between the conductive layer and the rigid non-conductive release liner,

wherein the periphery of the moisture barrier layer of each electrode is sealed to the release liner to enclose the gel layer of each electrode in a moisture barrier enclosure on its respective side of the rigid release liner.

10. (original) The electrode system of Claim 9, wherein the electrodes are further in electrical contact with each other through a conductive element that is disposed within the non-conductive release liner and which is in electrical contact with both electrodes through said gel layer.

11. (original) The electrode system of claim 9, wherein each electrode further comprises a lead wire that is connected through said first side to said second side of the electrode and which electrically connects the electrode to a medical device.

12. (original) The electrode system of claim 11, wherein the lead wire is electrically connected to the conductive layer and the electrically conductive gel by a connector comprising a rivet, ring tung terminal, staple, grommet, screw, bolt, or other electrically conducting fastening means that extends from the flexible non-conductive release liner through the conductive layer.

13. (original) The electrode system of claim 12, wherein the electrode further comprises an insulation layer interposed between a portion of the conductive layer and the non-conductive release liner, wherein the insulation layer protects an operator of the electrode from physical contact with the connector which is electrically connected to an electrical source.

14. (original) The electrode system of claim 9, wherein the non-conductive release liner comprises a polymeric sheet, coated paperboard, or foam.

15. (original) The electrode system of claim 9, wherein the non-conductive release liner comprises a material treated with an adhesion-reducing agent comprising a surface-treated polymeric sheet comprising siliconized polyethylene, polypropylene, polyester, acrylate, polycarbonate, or wax or plastic coated paperboard or foam.

16. (original) The electrode system of claim 9, wherein the conductive layer comprises a laminate comprising tin foil and polyester.

17. (canceled)

18. (currently amended) A self-storing electrode system comprising:

first and second electrode bodies each having a first and second side, wherein the first side comprises a flexible moisture barrier layer having a heat-sealable periphery and the second side comprises a conductive layer which does not extend to the periphery of the moisture barrier layer;

an electrically conductive gel disposed on each of the electrode bodies which is in electrical communication with the conductive layer of each electrode;

a rigid release liner sealed by a heat seal to the periphery of the flexible moisture barrier layer to enclose, protect and prevent desiccation of the gel layer; and

a lead wire electrically coupled to each electrode by means of a path that does not disrupt the moisture integrity of the release liner seal.

19. (original) The self-storing electrode system of claim 18, wherein the release liner seal further comprises a heat-seal formed between the flexible barrier layer and the release liner.

20. (previously presented) The self-storing electrode system of claim 18, wherein the flexible moisture barrier layer further comprises a vapor or air barrier material comprising a polymeric film or sheet, a foil material, or a coated substrate comprising a metal, textile, paper, or non-woven material coated with a polymeric material.

21. (previously presented) The self-storing electrode system of claim 18, wherein the flexible moisture barrier layer comprises a laminate comprising a first layer of a heat-sealable material comprising polyethylene disposed over a second layer of a vapor barrier comprising a fluoropolymer film.

22. (canceled)

23. (previously presented) The self-storing electrode system of claim 18, wherein the lead wire is connected to the conductive layer of the electrode for electrically connecting the electrode to a medical device.